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CURRENT LITERATURE

BOOK REVIEWS

Ecological plant geography

The name of WARMING always comes first to mind when one thinks of the great names in modern ecology. In November 1921 he passed his eightieth milestone, receiving a portrait album together with the congratulations of his coworkers in all lands. Ten years ago he retired from active service at the University of Copenhagen, but these ten years have been full of important researches, and his publications during this period have been numerous. One of the most important of these publications is the third German edition of his ecological plant geography.¹ The first German edition appeared in 1896, being essentially an unmodified translation by KNOBLAUCH of the original Danish edition of 1895. The second German edition was issued by GRAEBNER without cooperation with WARMING. The English edition of 1909 was essentially a new book, with a very different grouping of the subject matter, in which the author was materially assisted by a young Danish geographer, MARTIN VAHL. The third German edition has been worked over very carefully by WARMING, although it follows the general features of the English edition. The most conspicuous changes are seen in the chapter that deals with formations and associations, and here the author follows the recommendations of the Brussels Congress of 1910. The book is also much larger than preceding editions, and the references to the literature are brought to date, so far as possible. But for the war, the book would have appeared much sooner than it did. It was asked for by the publishers in 1912, and was ready in 1914.—H. C. COWLES.

Principes de Biologie Vegetale

Following his volume on *L'Evolution des Plantes*, published in 1918, the second posthumous volume of BERNARD's² lecture notes has been published under the title *Principes de Biologie vegetale*. The first part deals with cellular physiology of plants, with chapters on the principle of determinism, physical conditions of nutrition, nutritive metabolism, carbon nutrition, nitrogen nutrition, and the action of exterior agents upon the living cell. The second part of

¹ WARMING, EUG., and GRAEBNER, P., EUG. WARMING's Lehrbuch der ökologischen Pflanzengeographie; dritte umgearbeitete Auflage. pp. 762. Berlin: Gebrüder Borntraeger. 1918.

² BERNARD, NOEL, *Principes de Biologie vegetale*. pp. xii+212. figs. 18. Paris: Felix Alcan Library. 1921.

the volume is entitled coordination, and contains chapters on Thallophytes and Schizophytes, Myxomycetes and fungi, algae, lichens, and a final chapter on immunity among plants. It is an elementary treatise, written in entertaining and lucid style. That the author has been dead ten years accounts for the appearance of occasional remarks which do not quite reflect our latest knowledge, as for instance, that "the formula for the constitution of chlorophyll is not known." Beginners, either in botany or French, would find it a delightful little volume.—C. A. SHULL.

MINOR NOTICES

Flora of Natal.—BEWS,³ well known for his ecological study of the vegetation of Natal, has published a taxonomic account of the flora "for the purpose of assisting the study of plant ecology and botanical survey work in Natal." The introduction contains a very interesting account of the history of botany in Natal, from the earliest collector (1832) to the present time. The analytical keys are remarkably simple, leading to the genera, but the species are merely listed, with their ecological range and often with their local Zulu names. The author states that "the flowering plants of Natal, as now arranged, belong to 148 families, and include 901 genera and 3786 species."—J. M. C.

Osmotic pressure.—The publication of a new edition of Pfeffer's⁴ famous work on osmotic pressure will be welcomed by students of plant physiology and physical chemistry who have desired to own a copy of this classic work. No changes have been made from the first edition, except that an introductory appreciation of PFEFFER'S work by CZAPEK precedes the text.—C. A. SHULL.

NOTES FOR STUDENTS

Specificity of chromosomes and sex-determination.—For a final proof of the rôle of the individual chromosome we must look to the remarkable investigations of BRIDGES.⁵ It was this author who furnished a direct demonstration of the chromosome theory of heredity, when he showed that irregular distributions of the sex chromosomes of *Drosophila* were accompanied by irregularities in the inheritance of known sex-linked factors. He now⁶ provides a similar demonstration of the specificity of the autosomes, and at the

³ BEWS, J. W., The flora of Natal and Zululand. pp. vi+248. Pietermaritzburg. 1921. 15s. (Whelden and Wesley, 28 Essex St., Strand, London).

⁴ PFEFFER, W., Osmotische Untersuchungen. pp. xiv+236. figs. 5. Leipzig: Engelmann. 1921.

⁵ BRIDGES, C. B., Non-disjunction as proof of the chromosome theory of heredity. Genetics 1:1-52. 1916.

⁶ ———, Triploid intersexes in *Drosophila melanogaster*. Science 54:252-254. 1921.